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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,084	12/20/2000	Thomas Ebbesen	3672-0109P	6979
2292	7590	11/03/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			KIANNI, KAVEH C	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/720,084	EBBESEN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kevin C Kianni	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-32, 35-42, 55 and 56 is/are pending in the application.
- 4a) Of the above claim(s) 55 and 56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-32 and 35-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 55 and 56 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

- Applicant's withdrawal of claims 1, 34 and 43-54 in paper filed on August 06, 2003 is acknowledged.

### ***Election/Restrictions***

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

- I Claims 2-32 and 35-42, drawn to a web of circuitry comprising an element has an active region that is extended lengthwise therein.
- II. Claims 55-56, drawn to a web of circuitry comprising a first and second plurality of circuit elements, in first and second directions, respectively, forming an active region associated with circuitry.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, none of the claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims

are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections – 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-7, 9-20, 30 and 35-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudesen et al. (WO 99/14762).

Regarding claim 35 Gudessen teaches a web of circuitry (shown at least in fig. 1-3) comprising: at least two circuit elements each having ends (see figures 2-3 items 2-7 and resistive wires); at least one physical intersection of said elements (shown in at least figure 3a, intersected items 2-4 and 6-7) where the intersection (fig. 3, item memory cells 5) does not occur at the ends of said elements 2-7; and a predetermined circuit pattern, wherein said elements are arranged in multiple-dimensions according to said pattern (shown at least in fig. 1-3, items 3, 4, 7, 9, 2 and 1; also page 10, lines 24-31), where the intersection 5 is a point of communication between elements (see abstract) , where the intersections and varying properties of the elements form active regions (see page 4, lines 12-30), where the active regions are associated with circuitry in the pattern (see page 4, lines 12-30), where at least one element is a transmission line 2/4 or an isolator 6 and where said elements are arranged in said predetermined circuit pattern by integrating said elements using patching (shown at least in fig. 3a, items 3, 4, 5 and 7; also page 10, line 18-page 11, line 12).

However, Gudessen does not explicitly/specifically teach wherein the above patching is made through weaving, knitting, crocheting, knotting, or stitching. It would have been obvious to a person of ordinary skill in the art when the invention was made to produce Gudssen's circuit pattern (taught/depicted in at least figures 3a and 7 and pages 11-16)-- in which their patterns are analogous to applicant's cited claimed invention, depicted in specification figures 7-9b and 9d and specified in page 10-page 11+, in wherein the photomasking technique are discussed by both the prior art reference as well as the applicant for actively producing such patterns—using well

known techniques of weaving, knitting, crocheting, knotting, or stitching, since such conducting pattern formation provides multilevel electronic structure with more flexible technical solutions and reduced cost (see page 4, lines 3-8).

Regarding claims 2-7, 9-20, 30 and 36-42 Gudessen further teaches wherein the pattern is a two-dimensional fabric-like structure (shown in fig. 3a, items 2-7); wherein the elements are arranged such that the positions of the ends of the elements define a spatial grid (see at least figures 3a and 7, items defining special grid); wherein the elements have active regions that are defined by exposing portions of the elements to the encompassing environment (col. 11, lines 9-12+), wherein said element has an active region that is extended lengthwise therein (fig. 3, item 2, 4-7 and col. 11, lines 9-12+); wherein said element has an active region that corresponds to an end thereof (col. 11, lines 9-12+); wherein some of the elements are provided with a protective shielding or cladding (fig. 3b, items 1 and 3), the active regions in these elements being provided by removing the shielding or cladding at selected portions thereof (see fig. 3b, wherein active regions are exposed by removing shielding 3); wherein the active regions of the elements are provided in selected portions of the elements exposed in the surface of the fabric-like structure or protruding therefrom at selected locations thereof (see fig. 3b, items 2 and 7);, wherein the active regions of the elements are defined by exposing portions thereof to spatially selective physical or chemical influences (col. 11, lines 9-18); having at least two transmission lines wherein at least one transmission line is a conductor  $\frac{2}{4}$  embedded in an exterior cladding  $\frac{1}{3}$  composed of an organic

semiconducting material, where active regions are defined by contact between transmission lines, and where semiconducting junctions are formed at the contact points of said intersections (see fig. 3, items 2/4 and page 10, line 18-page 11, line 19); wherein the semiconducting junctions 5 are formed spontaneously upon contact (page 11, lines 13-18); wherein at least one semiconducting junction is a diode junction (see page 9, lines 30-36, see abstract); wherein the organic semiconducting material is a semiconducting polymer (see page 11, lines 9-18); wherein some of the elements, having characteristic lengths, are shielded over a portion of the lengths against exchange of energy between elements or the exterior surroundings, where one or more unshielded portions are adapted to enable exchange of energy through the unshielded portions (see fig. 3, items 2, 5 and 7 and abstract); wherein the unshielded portions of the elements are located at the intersections thereof (see fig. 3, item 5); providing the surface of the elements with a shielding or cladding material 1/9 before arranging the elements 2/4/7; and removing some shielding or cladding material, after arranging the elements, from some elements or from selected portions thereof at selected locations to form some of the active regions (see page 12, lines 21-24); wherein at least one intersection and associated elements form an active region where the physical properties of the elements result in the absorption or emission of energy in the region (see abstract; also page 4, lines 12-30 and page 9, lines 30-36); wherein at least one intersection allows electronic communication between the elements associated with the intersection (see abstract); wherein one element is composed of a transparent material (see page 11, lines 25-35); wherein one element is composed of a conducting material

(fig. 3, item7); wherein one element is composed of a semi-conducting material (page 11, lines 3-12); wherein the intersection absorbs electrical or optical energy (see abstract; also page 4, lines 12-30 and page 9, lines 30-36); wherein the intersection absorbs chemical or mechanical energy (see abstract; also page 4, lines 12-30 and page 9, lines 30-36); wherein the pattern contain elements that are discrete electronic, optoelectronic or optical devices or combination thereof (see abstract, wherein patches of electrical/optoelectronic elements that are discrete are being connected via buses).

5. Claim 8, 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Gudesen et al. and Alton (US 4,521,771).

Regarding claims 8 and 21-29 Gudessen further teaches wherein at least one of the elements is a signal transmission line that carries the predetermined intensities and frequencies to predetermined locations in the pattern (see page 9, line 30-page 10, line 3+ and abstract); wherein the intersections are adapted for absorption or emission of electrical or optical energy (see abstract; also page 4, lines 12-30 and page 9, lines 30-36); wherein the elements intersect in a spatial regular pattern or grid, where some elements in the pattern are adapted for emitting or absorbing electrical or optical energy (see abstract; also page 4, lines 12-30 and page 9, lines 30-36); wherein active regions of the elements are provided in selected portions of the element exposed in the surface of the fabric-like structure or protruding therefrom at selected locations thereof (see fig. 3b, items 2/7), said active regions being either a loop-like portion of an element or an end (fig. 3, items 7/2); wherein the pattern contains elements that are discrete



electronic, optoelectronic or optical devices or combinations thereof (see abstract); wherein the elements form a two/three -dimensional array of equally spaced elements (shown in fig. 3, items 5 and 7).

However, Gudessen does not specifically teach wherein the apparatus is a two- or three-dimensional optoelectronic display where the unshielded portions emit light at predetermined intensities, frequencies, and locations; where the active regions are pixels in the display;; wherein some elements are twisted pair transmission lines; wherein some elements are transmission lines that are coaxial cables wherein some elements are optical fiber transmission lines. Nevertheless, Gudessen teaches wherein the above web of circuitry can be used for forming of films/motion pictures (see page 16, last paragraph). The above limitations are taught by Lebby et al (shown at least in fig. 1-4, items active areas 22 and 24; see col. 4, lines 21-48; wherein, pixels are basic/smallest inherent elements of colors for image formation in displays/ pictures). Thus, Lebby provides transmission/receiving and ultimately display of communication information (see col. 2, lines 17-22). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify Gudessen's web circuitry shown in figure 3, by incorporating Lebby's web circuitry active elements shown in figure 3, items 22-24, so as to produce a conventional web circuitry that includes the above limitations, since the resultant optoelectronic system would provide control circuits being integrated with substrates realized in a semiconductor technology compatible with the substrate material (see page 5, lines 4-10).

6. Claim 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Gudessen et al. and Wiener (US 5524679).

Regarding claims 31-32, as discussed above, Gudessen teaches all limitations of claim 35. However, Gudessen does not teach wherein one or more of the discrete devices are physical or chemical sensors connected to at least one of the elements and wherein one or more of the elements are physical or chemical sensors. This limitation is taught by Wiener (see at least abstract and col. 6, lines 30-39 and col. 7, lines 58-67). Thus, Wiener provides sensing, imaging and communications (see col. 3, lines 28-35).

Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify Gudessen's web circuitry shown in figure 3, by incorporating Wiener's web circuitry active elements such as shown in figure 7, items 15, so as to produce a conventional web circuitry that includes the above limitations, since the resultant optoelectronic system would provide control circuits being integrated with substrates realized in a semiconductor technology compatible with the substrate material (see page 5, lines 4-10).

### ***Response to Arguments and Amendment***

7. Applicant's argument filed on 8/06/03 have been fully considered but they are not persuasive.

Applicant asserts (page 14, 3<sup>rd</sup> parag.-page 19, 5<sup>th</sup> parag.) that Gudessen under USC 103 does not teach wherein said elements are arranged in said predetermined circuit pattern by integrating said elements using waving, knitting, crocheting, knotting,

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or stitching. The examiner responds that although Gudessen does not explicitly/specifically teach wherein the above patching is made through weaving, knitting, crocheting, knotting, or stitching, it is would have been obvious to a person of ordinary skill in the art when the invention was made to produce Gudssen's circuit pattern (taught/depicted in at least figures 3a and 7 and pages 11-16)-- in which their patterns are analogous to applicant's cited claimed invention, depicted in specification figures 7-9b and 9d and specified in page 10-page 11+, in wherein the photo-masking technique are discussed by both the prior art reference as well as the applicant for actively producing such patterns—using well known techniques of weaving, knitting, crocheting, knotting, or stitching provided by the examiner in last office action, 6419981 6210771 5906004 5876863 5829979 5524679, since such conducting pattern formation provides multilevel electronic structure with more flexible technical solutions and reduced cost (see page 4, lines 3-8).

***THIS ACTION IS MADE FINAL***

8. This action in response to applicant's amendment made FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Cyrus Kianni whose telephone number is (703) 308-1216. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (703) 308-4881.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
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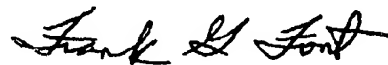
**or faxed to:**

(703) 872-9306 (for formal communications intended for entry)

**or:**

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



Kevin Cyrus Kianni  
Patent Examiner  
Group Art Unit 2877

Frank Font  
Supervisory Patent Examiner  
Group Art Unit 2877

October 6, 2003